



**CONTRA COSTA
WATER DISTRICT**

1331 Concord Avenue
P.O. Box H2O
Concord, CA 94524
(925) 688-8000 FAX (925) 688-8122
www.ccwater.com

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Directors

Joseph L. Campbell
President

Karl L. Wandry
Vice President

Bette Boatman
Lisa M. Borba
John A. Burgh

Jerry Brown
General Manager

Delta Stewardship Council
980 9th St Suite 1500
Sacramento, CA 95814

Subject: Environmental Impact Report (EIR) on the Delta Plan

Dear Ms. Macaulay:

Contra Costa Water District (CCWD) appreciates the opportunity to provide scoping comments for the Environmental Impact Report (EIR) on the Delta Plan. Key issues that must be addressed in the EIR include the following:

- 1) Immediate actions to address Delta conditions before the long-term plan can be implemented must be included in the Plan and in the environmental documentation. These must address emergency response (including a response plan to a seismic event, as studies show that salinity impacts can be quickly managed with water supplies restored in a matter of months), water quality and supply improvements, flood protection and ecosystem restoration. The state cannot wait the decades required for the major project implementation. To the extent that these can be explicitly defined, the environmental documents should describe the actions and impacts sufficiently that no further documentation is needed to implement them (i.e., do not do them on a programmatic basis but rather on an action specific basis).
- 2) The Delta Plan EIR should include a water supply reliability analysis, recognizing in that in-Delta users have a statutory priority over exports. The "Area of Origin" statutes and the Delta Protection Act (Water Code Section 12200 *et seq.*) were specifically enacted to protect in-basin and in-Delta water users. The water supply reliability analysis should quantify flows that are necessary for senior water right holders, in-basin users and fisheries so that the flows available for export can be determined; when this is done it should be clear that meeting the co-equal goals will require new storage. From the earliest statewide water planning, it has been known that the key to meeting the water demands expected after the year 2000 would require more storage. The current storage is adequate for meeting water supply needs in most years, and for meeting them such that California can manage its way through the annual April to December drought; current storage is not sufficient to manage the water supply through dry years (or droughts) and still meet the co-equal goals. The recent Bay-Delta Conservation Plan (BDGP) studies confirm this: they show that a massive isolated facility provides virtually the same level of exports as a

small facility and that an isolated facility does not solve the basic dry year problem.

- 3) The Delta Plan EIR should include an alternative to the BDCP. The BDCP is years behind schedule and it is not at all certain that the BDCP can meet the tests mandated in Senate Bill 7x-1 for its inclusion in the Delta Plan. Alternatives should include through-Delta alternatives and dual conveyance with a small isolated facility, since the BDCP studies show that a 3,000 cfs isolated conveyance provides essentially the same water supply reliability as a 15,000 cfs facility at approximately half the cost.
- 4) The EIR should include alternatives that avoid and minimize water quality impacts to the extent possible and provide full mitigation for any remaining unavoidable impacts. This will require examination of habitat restoration alternatives, flows on the San Joaquin River and substantial progress on dealing with South Delta water quality issues, including a salinity plan for drainage into the San Joaquin. Implementation of an isolated facility without dealing with the flow and pollution problems in the San Joaquin will create an "Arkansas cesspool" in the south Delta, with little or no flushing of pollutants. Mitigation should be tied to actual measured effects of implementing the alternatives since there is a high level of uncertainty in modeling and analysis of a reconfigured Delta.
- 5) The Delta Plan must contain a financing plan that recognizes that there is a broad base of beneficiaries in the Delta, and project costs should be assigned appropriately to all beneficiaries. Credit against costs should be included for those who currently contribute to restoration (for example, contributors to the Central Valley Project Improvement Act Restoration Fund) or those who have fully mitigated their impacts to fisheries.

Our recommendations addressing these important issues and other outstanding issues are attached. CCWD looks forward to providing further input to the Delta Plan as the process continues. Please call me at (925) 688-8100 or Maureen Martin at (925) 688-8323 if you have any questions or concerns.

Sincerely,



Greg Gartrell
Assistant General Manager

GG/MM:wec

Attachment

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1. Immediate Actions

The Delta Plan and EIR must consider Immediate Actions that can be implemented quickly, since the large infrastructure changes will take decades. CCWD recommends that these be included:

1.1. Clifton Court Forebay Pilot Fish Screens

Fish screens at or near Clifton Court Forebay have the potential to quickly reduce the loss of fish by predation in the Clifton Court Forebay and through salvage operations, and to increase water supply reliability through changes in operational restrictions. A study of pilot-scale screens at Clifton Court Forebay is included in the Interim Delta Plan and a study is underway by a coalition of water agencies including Contra Costa Water District, Metropolitan Water District,

A California Water Agency, Zone 7, and Santa Clara Valley Water District. The study will be completed by May 2010 and if results are positive implementation should proceed.

1.2. Restoration Projects

A number of ecosystem habitat improvements should be incorporated into the near-term actions of the Delta Plan. Many projects have been proposed and advanced to various levels, but have not yet produced environmental documents. By incorporating these habitat improvement projects into the Delta Plan, the projects would contribute to species recovery in the near-term and provide additional information for subsequent habitat improvement projects. Examples of such projects include:

- Restoration of floodplain habitat and salmon migration through the Yolo Bypass;
- Brackish tidal marsh habitat development in Meins Landing in Suisun Marsh; and
- Freshwater tidal marsh habitat development on Decker Island or Liberty Island.

These projects can increase evapo-transpiration over existing levels, and can affect water supplies and water quality. Such projects should be included in the Delta Plan EIR, with full evaluation and disclosure of potential impacts, including impacts to water supplies and water quality so that adequate mitigation measures can be developed to reduce any impacts to insignificance.

1.3. Flood and Levee Failure/Emergency Preparedness

Freshwater flows in the Delta must be protected and quickly restored after a major emergency such as a seismic event or flood. Protection of the transportation corridors, aqueducts and railroads is essential. Stockpiling materials for repairs and channel barriers at key locations in the Delta will reduce or prevent salt water intrusion immediately after levee failures and allow for quick restoration of fresh water supplies to the 23 million Californians dependent on the Delta for water. Protecting water supplies and important infrastructure corridors (including Highway 4, aqueducts and railroads) requires stockpiling materials and building cutoff levees in a key corridor. BDCP studies show that the Delta can recover quickly from a seismic event, and that a specific plan to flush out the salinity will restore water supplies even more quickly.

Based on a BDCP Steering Committee Presentation on levee failures given July 2010, a major earthquake would affect salinity and exports in the Delta for approximately 4 months under their worst case scenario. Clearly, this can be improved upon since the scenario studied included no specific actions to deal with the problem. In light of this information, the Delta Plan EIR should consider the system-wide response to a major earthquake including the optimal amount of water that could be used to flush the Delta and return export operations to normal. While a seismic event could pose severe problems if it occurs without preparation for such an event, it can be managed if there is preparation. The BDCP studies show this to be the case and suggest that when managed properly the effects are less than what would be expected from a dry year. Since the probability of a dry or critically dry year is about 35% in any year, and the probability of a major seismic event is less than 3% in any year, the Delta Plan and its EIR should focus on 1) preparation for seismic events to limit the effects and 2) how to deal with the far more likely and serious issue of inadequate dry year supplies.

1.4. Delta Quality and Smelt Recovery/Franks Tract or Threemile Slough Barriers Pilot Project

This project could have eliminated or reduced the impact on export pumping last year had it been in place because it would have reduced or eliminated the movement of smelt into an area where they were moved near the export pumps by the tides. A Franks Tract project (False River barrier) or Threemile Slough barrier can reduce Delta salinity intrusion in the fall and provide substantial fish benefits in winter and spring. Fish benefits include reduced entrainment of smelt at the export pumps by keeping the fish in the lower San Joaquin River (during periods when the smelt are located in this vicinity) and preventing their entry into Old River. In addition, the barrier will reduce seawater intrusion by keeping the seawater from entering Old River.

1.5. Reoperation of DCC

Alternative operation of the Delta Cross Channel (DCC) was proposed as part of the North/Central Delta Salmon Out-migration Study¹, coordinated by the Department of Water Resources. Based on the results of previous studies, the principal investigators hypothesize that the DCC gates could be operated with respect to the diel cycle to minimize fish movements into the central Delta while at the same time minimizing water quality impacts in the central Delta. These observations motivate the idea of closing the gates at night, presumably a period when salmon outmigrants are more vulnerable to entrainment into the DCC. Using this operational strategy, the DCC would be allowed to convey water into the central Delta during the day (and recreational boaters could move freely from the central to northern Delta through the DCC), where it would alleviate water quality concerns and allow increased exports over fully closed conditions². The Delta Plan EIR should incorporate modifications to the DCC operations as a near-term action, designed with an integral monitoring component to evaluate the effects of the barrier operations on multiple species of concern. Reoperation of the DCC could have immediate benefits and provide valuable data to assist in the long-term operation of a through Delta or dual conveyance project.

2. Water Supply Reliability

2.1. Determination of Flow

Most of the Delta Plan goals are improvements over existing conditions. To assess improvements in a meaningful way, it is crucial that the EIR include establishment of a quantitative baseline so projects can measure success or assess what changes must be made to achieve the desired improvements in an adaptive management framework. Improvements and benefits of various alternatives will vary given hydrologic conditions and therefore a wide range of hydrologic conditions must be assessed. Hydrologic conditions vary on a wide range of time-scales and at a

¹ Study proposal and review documents are available on the DWR project website:
<http://baydeltaoffice.water.ca.gov/ndelta/salmon/index.cfm>

² Bureau, Jon, Aaron Blake, and Russell Perry. 2007. Sacramento/San Joaquin River Delta Regional Salmon Outmigration Study Plan: Developing Understanding for Management and Restoration.

minimum, seasonal and inter-annual (wet vs dry year) variability must be considered. Improvements in water supply reliability are most needed during dry times and expansion of statewide storage is the most effective way to safeguard the water supply against the natural variation in water supply.

In order to quantify how much water is needed for senior water rights holders, in-Delta users and the environment, the Delta Plan EIR must start with the unimpaired hydrograph. It is particularly important for the Council to understand this given Cliff Dahm's presentation, Science Overview for Setting Flow Criteria for Estuaries and Rivers, during the January 27th 2010 Council meeting. Cliff Dahm calculated how much water would be available for export if 25% of the *measured* Sacramento River flow at Freeport were available for export. Using measured flow assumes existing operations, existing flows and ignores upstream consumption. These are the very factors that must be changed in order to improve the Delta.

Figure 1 shows unimpaired net Delta Outflow (NDO), a proxy for natural flow conditions in the absence of diversions, storage and discharges, compared to the measured NDO. The bottom panel shows the difference between the unimpaired and historical conditions. The discrepancy between the amount of water that is naturally available and the amount diverted has been increasing.

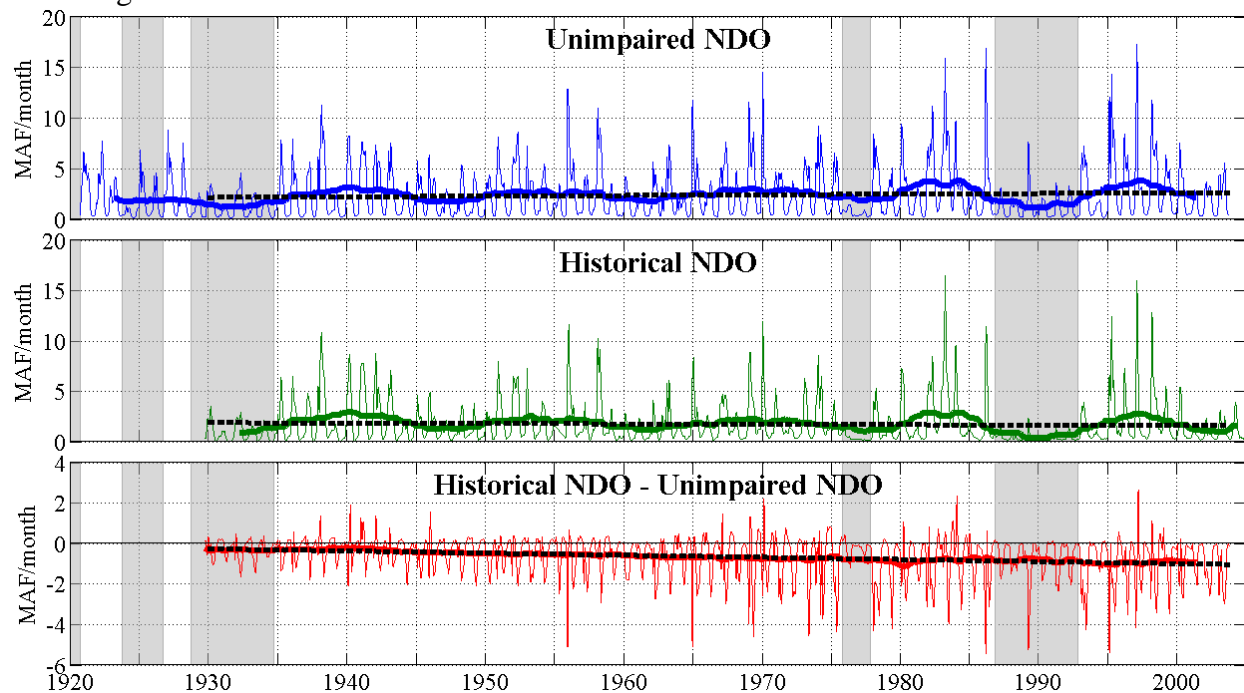


Figure 1 Comparing unimpaired Net Delta Outflow to historically measured or estimated NDO. Source CCWD 2010³

Once the appropriate data is used for the basis of determining flow for senior water rights holders, in-Delta users and the environment, it will be obvious that during the wet periods (winters and wet years), there is often sufficient water to meet the existing level of export

³ Contra Costa Water District 2010. Historical Fresh Water and Salinity Conditions in the Western Sacramento-San Joaquin Delta and Suisun Bay.

demands. It is not currently possible to take advantage of the wettest periods and divert the majority of water during that period because there is insufficient storage.

2.2. Storage

The Delta Plan EIR should define goals and priorities for increased storage projects throughout California so that excess flows during wet periods can be captured and stored for use during periods when there is not enough water available for water supply reliability after the needs of in-basin users, senior water right holders, and the environment have been met. The EIR must include storage options that will allow this.

Of the specific storage projects listed in the NOP, expansion of the Los Vaqueros Reservoir to 160 thousand acre-feet will be complete by the end of 2011 and is an example of providing environmental benefits while improving water supply reliability. Further expansion of the reservoir is under consideration and could provide even greater water supply reliability not only to existing CCWD customers, but also to others in the Bay Area.

3. BDCP

The Delta Reform Act of 2009 calls for inclusion of the Bay Delta Conservation Plan (BDCP) in the Delta Plan, subject to certain conditions. Unfortunately, the BDCP has not been completed and a number of issues must be resolved to determine how best to include it in the Delta Plan.

3.1. Water Supply Reliability

No agreement has yet been reached regarding a precise definition of water supply reliability for the SWP and CVP in the context of the BDCP. Given that the BDCP in its current form increases exports over current conditions, the BDCP may also be counter to the State of California policy (SBX7-1 85021) of reducing reliance on the Delta in meeting California's future water supply needs.

3.2. Delayed Completion

If the Delta Plan EIR is to proceed on schedule, the restoration and conveyance components of the alternatives considered must be able to stand alone without the completion of the BDCP. The Delta Plan EIR should include through-Delta alternatives and small isolated conveyance, since the BDCP studies show that a 3,000 cfs isolated conveyance capacity provides essentially the same water supply reliability as a 15,000 cfs facility at approximately half the cost. Since the BDCP is not complete, the Delta Plan EIR must now contain information about how the BDCP will be incorporated. There has been some discussion of this point at Council meetings, but no decision has been made. At what point in the process will the Delta Plan incorporate the BDCP (Final EIR/EIS, or earlier)? Is there a reasonable timeline or expectation that the BDCP will be completed? What will the Delta Plan contain regarding the overlapping policy areas (conveyance and restoration)?

3.3. Range of Alternatives

The Delta Plan EIR must include consideration of facilities smaller than the BDCP's currently proposed 15,000 cfs facility. Failure to consider the full range of reasonable alternatives would leave the EIR vulnerable to challenge. The full range of reasonable alternatives that could feasibly attain all or most of the Delta Plan's basic objectives (including but not limited to those which could avoid and/or substantially lessen significant effects of the proposed action or actions) should be considered and evaluated.

3.4. Inadequate Effects Analysis

BDCP effects analyses remain incomplete and insufficient. All of the alternatives under investigation increase diversions from the Delta and result in decreases in Net Delta Outflow (NDO) and increases in sea water intrusion in Suisun Marsh and the Western Delta. Increased salinity in this region also means that X2, the 2 ppt isohaline distance from the Golden Gate Bridge, will move further upstream. To date, these consequences of the BDCP have not been addressed. Lack of consideration of these impacts is unacceptable and the Delta Plan should recognize that a comprehensive effects analysis is needed to assess impacts and mitigation is required to offset the impacts.

4. Impacts & Mitigation

Both the BDCP and the Delta Plan EIR are considering alternatives that would have serious water quality and water supply impacts. Impacts must be minimized in the preferred alternative and any remaining impacts must be fully mitigated.. Impacts to Delta water quality and water supply must be fully evaluated and disclosed, and mitigation measures must be adopted to reduce significant impacts to insignificance.

4.1. Water Quality

Some alternatives in the BDCP and Delta Plan EIR may decrease net Delta outflow, increase salinity in the Western and Southern Delta, possibly increase residence times and increase temperatures. These changes in water quality could result in profound changes in the ecosystem and impact other beneficial uses.

Salinity

Increases in Delta salinity can have deleterious effects on the ecosystem, and are a key concern for CCWD's drinking water supplies. CCWD has spent over \$800M in the last 20 years to adapt to an ever saltier Delta and improve the quality of water delivered to its customers. The Delta Plan EIR must fully analyze and disclose the changes to Delta water quality, including electroconductivity, and chloride, bromide, and organic carbon concentrations in order to allow a complete evaluation of the potential impacts to CCWD operations. Mitigation for impacts from alternatives considered in the Delta Plan EIR must be addressed.

Phytoplankton

Phytoplankton and other forms of algae are the foundation of the food web in the Delta; changes in phytoplankton growth affect the ecological community as well as municipal and agricultural

uses. Increased temperatures, due to less river inflow, increased residence time, and climate change, tend to favor toxic algae such as *Microcystis*. *Microcystis* produces toxic chemicals that can be lethal to aquatic organisms, humans, and even kill crops that are applied with water containing a high concentration⁴. *Microcystis* is a growing concern in the Delta. Analysis of all alternatives should consider changes to the entire food web, starting with algae, not simply starting with fish as is typically done.

Increases in any kind of algae (not just toxic algae) pose an additional impact to municipal users since disinfecting water with a high organic concentration leads to high levels of disinfection byproducts. Disinfection byproducts are potentially carcinogenic and regulated. Significantly increasing the organic content of source water in the Delta (i.e. large algal blooms) could necessitate a change in technologies for treatment and possibly increase the levels of disinfection byproducts in treated water over current levels.

Turbidity

Changes in turbidity, which are likely to occur due to changes in hydrodynamics and habitat restoration, could also have a profound effect on the ecosystem. Turbidity is an important cue for delta smelt movement and provides protection from predation⁵. As exports are shifted to the Sacramento River in the northern Delta and habitat is restored, turbidity will decrease. Decreases in river inflow will mean a decrease in sediment transported into the Delta. Increased restoration will decrease tidal energy and decrease re-suspension of existing benthic sediment. Smelt migration has been hypothesized to correlate with turbidity plumes so it is essential that any alternatives consider impacts to turbidity throughout the Delta.

Decreasing turbidity could also further increase phytoplankton blooms. Phytoplankton and algae need sunlight to grow and the clearer the water is the more sunlight is available for growth. Further increases in phytoplankton blooms would exacerbate the above mentioned conditions and potential problems.

Contaminants

Contaminant loads from the San Joaquin River and other sources such as waste water treatment plants and in-Delta agricultural drainage must be addressed. Agricultural return flow is a source of selenium to the Delta. Selenium can be toxic and is a persistent ecosystem stressor that should be remedied. The Delta Plan EIR should include strategies to reduce selenium concentration in the Delta by reducing loading from the San Joaquin system and increasing flows to improve circulation in the Southern Delta. Reductions in selenium loading must be done prior to large scale restoration or conveyance facilities that will increase residence time in the Delta and further exacerbate the contaminant accumulation in the Southern Delta. The Delta Plan EIR should analyze impacts of contaminant residence times (such as selenium and ammonia) at current and future levels.

⁴ Cecile Mioni 2010.

http://www.deltacouncil.ca.gov/delta_science_program/pdf/seminar_bb_microcystis_presentation_051310.pdf

⁵ Schoellhammer, D.H. http://ca.water.usgs.gov/projects/CA07C_1.html

4.2. Water Supply

The City of Antioch has been diverting fresh water from its intake since the 1860s. The City has an adjudicated pre-1914 appropriative right. Salinity at the City's intake has increased substantially over the years and is projected to increase even further with the proposed BDCP project. When salinity at the City's intake is so high that it precludes use of water at the intake, the City purchases water from CCWD; the City is only partially reimbursed for these purchases according to the terms of an agreement between the City and the California Department of Water Resources (DWR) which could be potentially rendered nearly ineffective by the salinity levels predicted from the BDCP Project. The impacts of any approved projects in the Delta Plan EIR must be mitigated.

4.3. Fisheries

Scientific research concerning the current pelagic organism decline (POD) has highlighted the importance of water quality in ecosystem function. The basic conceptual model⁶ for the POD identifies the following relevant physical and chemical water quality parameters that determine the habitat suitability: salinity, temperature, turbidity, contaminants, disease, and toxic algae.

The salinity gradient as indexed by the position of X2 is correlated to the abundance of numerous species⁷, indicating that population levels increase as the salinity gradient is pushed seaward. Although the relationships between populations and X2 have changed with the introduction of the invasive clam *Corbula amurensis* and, more recently, for certain species during the POD years, freshwater flow continues to be an important requirement for a healthy ecosystem. Therefore, the EIR should analyze the impacts to X2, listing the average monthly value and maximum daily change in X2 from the baseline conditions. If the EIR proposes changes to the existing X2 standards, the EIR must demonstrate that the changes benefit the fish populations for which the standards were developed, including the new X2 requirement imposed by USFWS⁸ for implementation in the fall months following wet and above normal water years.

Due to this evidence that salinity is an important indicator of population abundance for a number of species, and fall salinity is particularly important for delta smelt, the Delta Plan EIR should assess the project's effect on salinity at multiple locations in Suisun Bay and within the Delta. The salinity regime under project conditions should be compared to the salinity regime under current conditions and compared to the observed salinity regime at different time periods in history (e.g. 1910's, 1960's, 1970's, 1980's). The impact of changes in salinity should be discussed in terms of the potential impact to the covered species resulting from direct changes to habitat environmental quality and resulting from indirect changes due to the likely effect on

⁶ Interagency Ecological Program for the San Francisco Estuary (IEP). January 2008. Pelagic Organism Decline Progress Report: 2007 Synthesis of Results. Available at http://www.science.calwater.ca.gov/pdf/workshops/POD/IEP_POD_2007_synthesis_report_031408.pdf

⁷ Jassby, A. D., W. J. Kimmerer, S. G. Monismith, C. Armor, J. E. Cloern, T. M. Powell, J. R. Schubel, and T. J. Vendlinski. 1995. Isohaline position as a habitat indicator for estuarine populations. *Ecological Applications* 5: 272-289.

⁸ U.S. Fish and Wildlife Service (USFWS). 2008. Biological Opinion on the Coordinated Operations of the Central Valley Project (CVP) and State Water Project (SWP). Final. December 15, 2008.

distribution of invasive species, such as the overbite clam *Corbula amurensis* and aquatic water weed *Egeria densa*, which could have a subsequent impact to fisheries.

5. Financing

The Delta Plan EIR should include a financing strategy that ensures that all beneficiaries of Delta improvements pay for benefits received. New water conveyance infrastructure should be funded by the direct beneficiaries, i.e. the water agencies that receive water through the new conveyance. Improvements with more widespread benefits, such as Delta levee improvements and emergency preparedness, should be funded by all who receive the benefits, with recognition that this includes state funding for broad public benefits. Table 1 below was prepared by the California Urban Water Agencies and identifies the range of Delta users who will benefit from various Delta improvements. To the extent that user fees are used to fund these improvements, the fees should be allocated to all beneficiaries in proportion to their benefits.

Table 1 Beneficiaries of Delta Improvements

<i>Improvements:</i>	Broad Public	Drinking Water Suppliers	Agricultural Industry	Delta Communities	Transportation	Other Delta Infrastructure	Waste-water Discharges	Recreation and Tourism Industry	Commercial Fishing Industry	Building Industry
<i>Emergency Preparedness</i>	●	●	●	●	●	●	●	●	●	●
<i>Flood Control and Levee Improvements</i>	●	●	●	●	●	●	●	●	●	●
<i>Habitat Restoration & Ecosystem Protection</i>	●	●	●	●	●	●	●	●	●	
<i>Water Quality Improvements</i>	●	●	●	●			●	●	●	
<i>Conveyance Programs</i>	●	●	●				●	●	●	
<i>Storage Projects</i>	●	●	●	●	●	●	●	●	●	●
<i>Water Conservation Programs</i>	●	●	●				●			●
<i>Wastewater Recycling Programs</i>	●	●	●				●			●
<i>Wastewater Treatment Improvements</i>	●	●	●	●			●	●	●	

6. Water Use and Efficiency

To meet the policy goal specified in statute 85054 (d), ‘Promote statewide water conservation, water use efficiency and sustainable water use’, the Delta Plan EIR must establish a baseline of water use by sector and attempt to quantify the savings currently possible by increases in efficiency and conservation. Some previous analyses have overestimated the amount of water that can be saved through conservation and efficiency given current practices and existing technology. For example, it is not uncommon to make estimates of potential conservation and potential recycling, and then add the two numbers; however, conserving and recycling the same water is not possible and the sum of the two double counts a substantial quantity of water. The Delta Plan EIR should quantify trends in water use by sector and identify trends in conservation and efficiency, and provide realistic projections and alternatives as part of the Delta Plan and EIR.

Urban

Urban water use is a small fraction of the total water use in California (~20%). The Delta Plan EIR should quantify trends in urban water conservation so as to form a reliable and realistic expectation about how much water can be gained through urban conservation. Conservation programs are routinely implemented at the local level during droughts and relatively reliable data exists regarding how much water can be saved through existing practices. Most water districts serving urban customers already have in place the personnel, the technology and enough ‘tried and true’ implementation strategies available to meet the SBX7 7 goals of 20% per capita reduction by 2020. The urban water conservation requirements currently required by SBX 7 should serve as an example for other sectors such as industry and agriculture.

Agricultural

Agriculture is the largest water use in California; increases in agricultural efficiency could yield the greatest water savings. Increasing agricultural conservation and efficiency deserves careful consideration in the Delta Plan EIR.

Water use and technology available varies by region and by crop type. Where information exists, an estimate of the amount of water that could be saved through improved agricultural efficiency should be made, even if it is only available for certain crop types and certain regions. The Delta Plan EIR needs to identify the knowledge gaps and provide the baseline for assessing how much water savings agricultural efficiencies could yield. The EIR must include alternative conservation levels for agriculture.

Industrial

There is no mention of industrial water use in the Delta Plan NOP. Power plants and refineries are present in the Delta and the surrounding communities and throughout California, and process water demands for those industries can be high. Water use by those industries should be quantified in the Delta Plan EIR and if possible efficiency efforts should also be quantified. If no data are available for those particular industries, the Delta Plan EIR should include a strategy for expanding monitoring of industrial water use and promoting efficiency measures for all water uses in California.